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THIS LETTER IS SUBMITTED CONFIDENTIALLY TO  
THE UNITED STATES PATENT AND TRADEMARK OFFICE  
GROUP ART UNIT 3724  
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June 18, 2010

Examiner Phong H. Nguyen  
United States Patent and Trademark Office  
Group Art Unit: 3724  
USPTO BOX 1450  
ALEXANDRIA, VA 22313 USA

**Subject:** US Patent Application No. 10/542,259

Sir,

I am sending this letter to you in your capacity as the Examiner of the case referred to above. I am an independent inventor who has developed a new technology related to the cracking of production parts such as connecting rods. The technology is referred to as the "Resonance-Fatigue Fracturing Technology" (RFFT) for which I have been granted the following patents: US6,644,529; US7,143,915; US7,497,361; CA2,287,140 and EP1324849. The RFFT is the first technology that can be used successfully - from a commercial point of view - to crack high strength materials by utilizing the damaging effect of fatigue. In fact, it represents a breakthrough in the art.

Recently, I have become aware of US Patent Application No. 10/542,259 for an invention entitled "Method and Device for Cracking Disk-Like or Plate-Like Production Parts", Inventor Name: Horst Wisniewski. Therefore, I have decided to write to you in order to provide information which - as I believe - should have a bearing on the patentability of the claimed subject matter of this patent application.

**I THE PRIORITY ISSUE**

The earliest priority date of Wisniewski's invention goes back to February 4<sup>th</sup>, 2003, while the earliest priority date of the RFFT goes back to October 13<sup>th</sup>, 1999.

## II TECHNICAL INTRODUCTION

Failure of metal parts due to the damaging effect of fatigue has been known for about two centuries. Thus, fatigue effect alone can be used to separate two portions of an integrally formed part. However, fatigue crack propagation rates in steels and in metals are very low. It is for this reason that it was not expected to use the damaging effect of fatigue to crack production parts before the RFFT. For instance, if at a high stress intensity range ( $\Delta K$ ) fatigue crack propagation rate is equal to 0.00018 millimeter/cycle, then at a frequency of 10 Hz [US 10/542,259, 0015] a fatigue crack will propagate for a distance of about 0.018 millimeter in ten seconds. On the other hand, the time cycle in the industry for cracking a light vehicle connecting rod - as an example - can be as short as 7 seconds. In an average size connecting rod of a light vehicle, cracks must extend for a distance of about 12 millimeters on each side of the crank bore in order to complete the separation of the two portions. For larger parts, the cross-sectional areas to be cracked can be much greater. It is not possible to significantly expedite the fatigue crack propagation rate by applying a fatigue exerting force at a high frequency.

As such, while using only the damaging effect of fatigue in cracking production parts may not be fast enough to meet the requirements of the industry, the RFFT was the first technology in which the effect of fatigue is utilized for a very important task: to significantly weaken the production part. While many methods have been utilized in the prior art to weaken the part that to be cracked; fatigue stress has the advantage that it weakens the part during the process only, not like any of the prior art methods such as reduction of the cross-sectional area, embrittlement, etc., which result in a permanent weakening of the part that extends to its service life.

It was concluded in the Thesis (IDS 06-16-2010) that a small extension of a fatigue crack substantially reduces the tensile force required to fracture a steel ring<sup>1</sup>. It was shown that propagating fatigue cracks for a distance of about 0.3mm reduced the tensile<sup>2</sup> load required to fracture the ring (attachment 1) by about 50%<sup>3</sup>. It is

<sup>1</sup> "A small extension of the crack causes a significant increase in the stress intensity factor of the ring."; Thesis, pp 82.

<sup>2</sup> Since it generates mainly tensile stresses at the fracture plane.

<sup>3</sup> Thesis; pp 82 and pp 83; specimen number 6.

worth mentioning that notches produced by machining have much less effect in weakening a steel part than the effect produced by fatigue cracks<sup>1</sup>. As such, in the RFFT the periodic fluctuation of the load is utilized in creating and extending cracks that emanate from the notches and in creating micro-cracks along the predetermined fracture plane. Thus, the part is weakened and the critical tensile load required to fracture it is reduced. As the cyclic load continues to be applied, the part is further weakened by crack extension and the critical tensile load is further reduced. Once the critical tensile load required to fracture the part is reduced to become equal to the maximum tensile value of the applied fluctuating load; the cracks snap through the remaining ligaments of the part and the separation is completed by fracture not by fatigue crack propagation. It is worth mentioning that the tensile load responsible for the fracture can be due to the cyclic load, the pre-stressing load or both of them superimposed.

As such, the role of each of the two components of the fatigue load on the part to be cracked should be clear. It is the fluctuation of the fatigue load that cause crack extension and the weakening of the part, while it is the maximum tensile load reached that is responsible for fracturing the part.

While the process as described above is fast enough to fracture separate certain parts; however, the process can be further expedited by introducing the effect of resonance and by the use of a dynamic force. If a resonance condition is achieved in the part during the process, fatigue crack growth rate becomes much higher. Moreover, the time of cracking a part can be further shortened by using a dynamic force. If the exertion of a fatigue load results in the formation of fatigue cracks which continue to grow by maintaining the exertion of the load, it is obvious then that instead of waiting for the separation to be completed as it was described earlier, it is possible at a certain point – when the part becomes weak enough – to apply a dynamic force to complete the separation by dynamic fracture.

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<sup>1</sup> Thesis; pp 24, 2.6.3 Cracks and Notches.

### III THE BASE IDEA OF WISNIEWSKI'S INVENTION

As per the specification of Wisniewski's invention, the base idea of his invention is to damage the material in the fracture area by subjecting the production part to alternating stress: "[0009] The invention is based on the idea of *damaging the material in the fracture area* not as in the overwhelming majority of the known methods – in an abrupt way, but to allow the forces required for this to act on the decisive areas of the production part in the form of alternating stress. To put it simply: the material's structure is not to be abruptly destroyed, but *slowly 'worn down' by an alternating load in the decisive area*".

In fact, the most commonly used term in the literature to refer to an alternating stress or to an alternating load acting on an object so that the material's structure in certain zones of that object is slowly 'worn down' is the simple term **Fatigue**. In material science, fatigue is defined as the progressive and localized structural damage that occurs when a material is subjected to repeated or varying load. The first question that comes to the mind of the reader of this application is that: is the writer of the specification really putting it simply by replacing the readily understood term "Fatigue" by a lengthy description: "To put it simply: the material's structure is not to be abruptly destroyed, but slowly 'worn down' by an alternating load"?

The same point can be observed throughout the specification. In other words, while the main idea of this invention is to subject the production part to fatigue; however, the writer of the specification has avoided the use of the term fatigue in the most searched parts of a patent application, namely; the title, the abstract and the claims. Instead, lengthy and indirect or rather ambiguous descriptions are used. For example, paragraphs [0007] and [0010] describe processes to subject the production part to fatigue. However, to alleviate this odd omission of the term fatigue, it is explicitly mentioned – only in body of the specification – that the production part is subjected to fatigue stress [0012].

It is remarkable that the same remark was made by the Examiner when he asserted that the phrase "the production part, along the fracture plane, is subjected to a tensile stress alternately on said upper side and under side," in the base claim is not correct (Amendment, 2010-05-03). The Examiner's sense is notable when he grasped that

the phrase is not a straight forward description but imply an attempt to avoid the use of the terms that are customary used in describing the case. Accordingly, the phrase has been amended by the applicant's representative as follows: "*the production part, along the fracture plane, is subjected to an alternating stress*", (Amendment, 2010-05-03). Once again the use of the term fatigue has been avoided.

It is worth mentioning that the term "*alternating stress*" refers only to the effect of the fluctuation of a fatigue load which, as was explained earlier, causes crack extension and weakening of the part. As such, it is claimed, in the current base claim, that a device which generates an alternating (fatigue) stress is used to crack a workpiece, a fact that has been known for about two centuries.

In the following, claim number 10 of European patent EP 1324849 has been amended by choosing one of the two options described in the claim and by replacing the terms used in the claim by their equivalents in US 10/542,259 and by removing the terms which refer to the existence of a bore (non essential feature for the process). The Examiner can use this modified<sup>1</sup> claim to examine whether or not the base claims of US 10/542,259 (original or amended) include inventive step over the patents of the RFFT or the differences are such which should be obvious to someone who is skilled in the art.

Amended claim number 10 of European patent EP 1324849

*"10. A process for the cracking of a production part into an upper side portion and an under side portion, the production part having a pre-specified fracture plane passing through the production part, the process including the step of applying alternating load to at least one of the upper side portion and the under side portion, said alternating load being applied to crack the production part into the upper side portion and the under side portion so as to separate the upper side portion from the under side portion substantially along said pre-specified fracture plane, said alternating load being a longitudinal alternating load applied to one of the upper side portion and the under side portion relative to the other of the upper side portion and the under side portion, said longitudinal alternating load being applied in a direction substantially perpendicular to said pre-specified fracture plane."*

<sup>1</sup> Details of the amendments are shown in attachment 2

#### IV THE BASE IDEA OF THE RFFT

In the RFFT a production part is cracked by subjecting it to fatigue load as a primary cracking mechanism. One or more of three other mechanisms, namely; resonance, pre-stressing and impact can be used in order to expedite the cracking process and to make it very efficient. The claimed subject matter of the RFFT patents includes claims for cracking a production part due to the use of fatigue load alone. See for instance, claim number 10 of European patent number EP1324849, claim number 4 of US 6,644,529 and claim number 1 of US 7,497,361.

#### V SIMILAR FEATURES BETWEEN THE US 10/542,259 AND THE RFFT PATENTS

While the patentability of Wisniewski's application will ultimately be decided by the US Patent Office; however, it is the opinion of the undersigned that Wisniewski's patent application does not include an inventive step over the inventions of the RFFT. Consequently, it is not patentable over the claimed subject matter of the RFFT patents. This is further explained in what to follow.

##### **1. The base idea of both inventions is the use of fatigue as the primary mechanism for splitting a production part**

The patents of RFFT explicitly mention the use of fatigue as the primary mechanism in the fracturing process. Fatigue is described as the result of "*fluctuation of stress*" (Abstract) that takes place due to the application of "*harmonic forces (or any time varying forces)*" (US 7,143,915 col.3, lines 16-18. On the other hand, in US 10/542,259 the use of fatigue as a primary mechanism is described as was mentioned earlier, it is also mentioned as subjecting the production part to "*tensile stress alternately on the upper side and the lower side*" (Abstract) & [0007] or as to allow the required forces "*to act on the decisive areas of the production part in the form of alternating stress*" and as "*alternating load in the decisive area*" [0009]. This alternating load can be generated by allowing the clamping jaws "*to take on a periodically changing rocking motion*" [0010]. Moreover, the specification refers to these stresses as fatigue explicitly in [0012] & [0013].

**2. In particular, both inventions utilize the damaging effect of fatigue for splitting production parts**

The patents of the RFFT mention the use of the damaging effect of fatigue explicitly "*(a) Fatigue.. will weaken the predetermined fracture plane by creating micro-cracks,*" Abstract.

On the other hand, in US 10/542,259 it is mentioned explicitly that the damaging effect of fatigue is the base idea of the invention "[0009] *The invention is based on the idea of damaging the material in the fracture area .. slowly worn down by an alternating load in the decisive area*".

**3. Both inventions are related to the fracture separation of integrally formed parts at a predefined fracture plane**

Claim number 1 of US 6,644,529 states that "*A process for the fracture separation of a connecting rod having an integrally formed cap and rod portion...along a predetermined fracture plane...*"

On the other hand, in US 10/542,259 it is mentioned that: "[0001] *The present invention relates to a method for fracture splitting disk-like or plate-like production parts, and a device for performance of the method. [0002] The method for separating production parts produced in one piece by means of so-called "fracture-splitting" in a predefined plane and in this way avoiding complicated machining work has been known for a long time*".

**4. A notch is provided at the area of the fracture plane of the production part in both inventions**

In absence of a stress-riser, crack initiation in a production part under the effect of fatigue can take much longer time. The patents of the RFFT mention that the part should be provided by a stress-riser or a V-notch: "*For this process, a stress-riser should be provided in a prior process, using any of the known methods, in order to predetermine the fracture plane*". US 7,143,915 Col. 3 Lines 11-14, "*.. in a pre-notched connecting rod..*" Abstract, and *..the V-notch..*" Col. 3 Line 60.

On the other hand, similar feature is described in US 10/542,259: "[0018] *During machining by fracture-splitting, it is known and customary to assist the fracture-splitting*



process by providing a fracture notch and also to influence its location and direction. In connection with the method according to the invention, it is, therefore, expedient, to provide the production part with a fracture notch of this kind on its upper side and/or underside in the area of the fracture plane".

**5. Both inventions utilize prestressing of the production part as a secondary mechanism**

The patents of the RFFT mention the following "(c) Pre-stressing forces: three pre-stressing forces are applied in the present invention. The primary one is applied by moving an upper jaw, which is part of the clamping arrangement in a direction perpendicular to the predetermined fracture plane and away from it". US 7,143,915 Col. 4 Lines 3-7.

A similar feature is described in US 10/542,259: "[0011] In order to increase the influence of the alternating load on the decisive areas of the production part, it can be expedient to superimpose the periodically changing rocking motion of the clamping jaw pairs towards each other with a tensile force which pulls the jaw pairs apart substantially perpendicular to the fracture plane."

**6. Both inventions apply the alternating load by moving the two portions relative to each other**

Applying fatigue force in the RFFT patents is achieved by applying a cyclic rocking motion so that a relative cyclic motion is induced between the two portions: "...longitudinal cyclic force applied to one of the first portion and the second portion relative to the other of the first portion and the second portion." US 7,143,915 Claim 1. This is further explained viewing Figure number 3 and by reading the following "One of them for instance, is to apply a harmonic force to the cap, in a direction that is perpendicular to the predetermined fracture plane". US 7,143,915 Col. 6 Lines 40-44.

A similar way is described in US 10/542,259 for applying alternating load to the production part: "[0010] ... A particularly simple procedure consists in the fact that the clamping jaw pairs are induced to take on a periodically changing rocking motion".

#### 7. Both inventions utilize dynamic force as a secondary mechanism

The patents of the RFFT mention the use of a dynamic force as a secondary mechanism to assist in the fracture splitting process at a selected time instant "(d) *Dynamic force: a dynamic force is finally applied at a time instant  $T_f$  by increasing the primary pre-stressing force suddenly as an impulsive force...*" US 7,143,915 Col. 4 Lines 35-37.

One the other hand, in US 10/542,259 it is mentioned that "[0014] *In the event of superimposition by means of a tensile force, it is advantageous for the tensile force to be continuously increased. If required, the tensile force can also be advantageously introduced in a pulsating way.*"

The only difference is that in US 10/542,259 the application of the dynamic force is repeated, an obvious alternative to one having ordinary skills in the art.

#### VI ADDITIONAL INFORMATION

It deems instructive to make the Examiner aware of some additional information that give a better perspective on the case. The details provided in what to follow are meant to demonstrate several issues:

- A. the RFFT has attracted a great attention of the industry as a breakthrough in the art at a very early stage of its history;
- B. the unusual and suspicious events that took place at an early stage of the patenting process of the RFFT patents, and
- C. my sense of moral obligation necessitates making my experience as widely known as possible to patent office officials and to other independent inventors around the world. Patent office officials must recognize that the current patenting system contains a major loophole and is profoundly not faire at least for independent inventors. As for independent inventors, they should become aware of what they would face down the road with a successful invention before embarking on the patenting adventure. As such, mentioning these details is a first step in these efforts.

It should be noticed as well that, many of these details can be verified by the Examiner through the USPTO records. Assessing the consequences of many of these events and what they imply are left to the Examiner's intuition. Moreover, additional details and supporting evidences are available and will be submitted as needed.

**Sequence of events:**

1. On October 13, 1999, I applied for a Canadian patent and on June 22, 2000 for a U.S. patent (09/409,599). On October 10, 2000 I applied for a patent through the Patent Cooperation Treaty (PCT/CA00/01173). Being a graduate student at the time, all applications were prepared by me without the involvement of any patent agent.
2. Following the issuance of the first patent for the RFFT (Canadian patent no. 2,287,140) on February 13, 2001, I started to inform automakers and auto suppliers about the invention. In May 2001, I received a letter from Dr. Manfred Fortnagel, senior vice president of DaimlerChrysler AG, informing me that the automaker is interested in my technology (A3).
3. Shortly afterward, I was invited by Alfing Kessler Sondermaschinen GmbH - a major German auto supplier- to visit Germany to discuss my invention. In July 2001, I visited the company's facilities in Aalen, Germany where I met Mr. Horst Wisniewski (the applicant of US 10/542,259) and I made extensive explanations of the idea of the invention (A4). Mr. Wisniewski informed me that they will conduct tests to assess the idea and based on the results they will determine whether or not Alfing has an interest in my invention. Later when I contacted Alfing to inquire about their situation, I was informed that the Company has no interest in my invention because the test results were not successful. Since then, I have contacted Alfing's manager in the USA offering to be involved in further testing to resolve any technical problem. The typical answer I have received from him was that "I will try to convince the new management".
4. In the mean time, I retained a lawyer to represent me before the USPTO. In October 2002 we received a notice of allowance from the USPTO for my first US patent application. In January 2003 I instructed my lawyer to pay the issuance fee and to apply for a continuing application to request the prosecution of the remaining part of the invention; I paid him the required Office and Legal fees.
5. After waiting for six months for my first US patent to be issued, I contacted the USPTO to inquire about the reasons for the delay, I discovered that my lawyer has submitted a Continued Prosecution Application, a Petition and a Request for

Continued Examination in response to the notice of allowance and without my knowledge. I also discovered that the USPTO has never received a continuation application from my lawyer. As a result, I revoked his agency, applied for a divisional application myself (10/643,910, on August 20, 2003) and submitted a complaint against him before the Office of Enrolment and Discipline in August 2003.

6. Shortly afterward, I discovered that there is a patent application pending in the USA (10/205,785) and internationally (PCT/US02/23862) applied for by a German applicant. I found that the claimed subject matter of his invention is substantially the same as my invention. The applicant did his best to distinguish his invention from mine and his patent application was about to be issued. I sent a comprehensive protest on January 7, 2004. In the mean time, I applied for another divisional application (10/751,817, on January 6, 2004). As a result, the USPTO issued an action in which allowed material was withdrawn as being non patentable over Guirgis and eventually the application was abandoned on August 8, 2005.
7. On March 18, 2005, I retained another lawyer in order to represent me before the USPTO. During April 2005, I reminded the lawyer with the need to respond to the USPTO action in connection with the first divisional application 10/643,910, however; he indicated that it is better to abandon this case and to file a set of new claims in the other divisional 10/751,817. Shortly afterward the lawyer prepared a new set of claims. Accordingly, when the examiner contacted me by phone to inquire about my intention toward this case; I informed him that I intend to abandon it according to the advice of my lawyer. Finally, a notice of abandonment was mailed on May 17, 2005.
8. During the months of May and June 2005, I reminded my lawyer repeatedly that we need to respond to the USPTO action - dated March 24, 2005 - in connection with 10/751,817, however; he did not respond to most of my calls or e-mails. Eventually, on June 24, 2005 and after about ten days of intensified contact attempts, the lawyer made a one-line-response and did not file a new set of claims which he has already prepared months ago. I informed my lawyer that his

response is not enough and he needs to file the new set of claims, however; while he agreed with me on that during a telephone call on July 8, 2005, he never did file the claims.

9. During the second part of August 2005, I made intensive efforts to contact my lawyer to urge him to file a supplemental response to the response of June 24, 2005 but my efforts were not successful, his office was closed and it seemed that he has disappeared. As a result, on August 24, 2005, I filed the new claims myself. Finally, the lawyer contacted me on September 13, 2005 indicating that he was unavailable due to "significant personal issues" and informed me that he will no longer be able to represent me and he will courier the file to me.
10. Recently, I was made aware that Alfing Kessler Sondermaschinen GmbH has been patenting its invention around the world (Europe, Japan, Canada, Mexico, Korea, China and Brazil) under its name. It is only in the USA where patent application No. 10/542,259 has been applied for under Mr. Wisniewski's name.

## VII FINAL REMARKS

Examiner is respectfully asked to forward the details of my case to his superiors in order to investigate it thoroughly. Patent office officials must consider taking actions to overhaul the patent system in order to make it faire for all entities regardless of their size. Large corporations must not be able to exploit the power disparity between an independent inventor and a much larger entity through the patenting system. Using the vast human, legal and financial resources of a large entity to make legally different versions of technically identical subject matters is making a mockery of the patenting system. That must be punishable by law. As for independent inventors, the repeated story of helping the people who are in fact ripping you off adds insult to injury. Statistics show that less than 1 percent of all patented ideas are commercially viable. If the reward of even the most successful innovations conceived by independent inventors will be to incur pain and loss and to go through endless David-and-Goliath type of battles, the final result will be a corrosion of trust in the patenting system. It will simply be viewed as an obsolete system, at least for independent inventors.

Having the motives explained earlier, I intend to continue doing efforts to make my case as widely known as possible through contacting senior officials in governments, patent offices and independent inventors' support groups.

Finally, I wish to thank you for your time and effort. I remain available to provide any further details and to answer any question.

Regards,

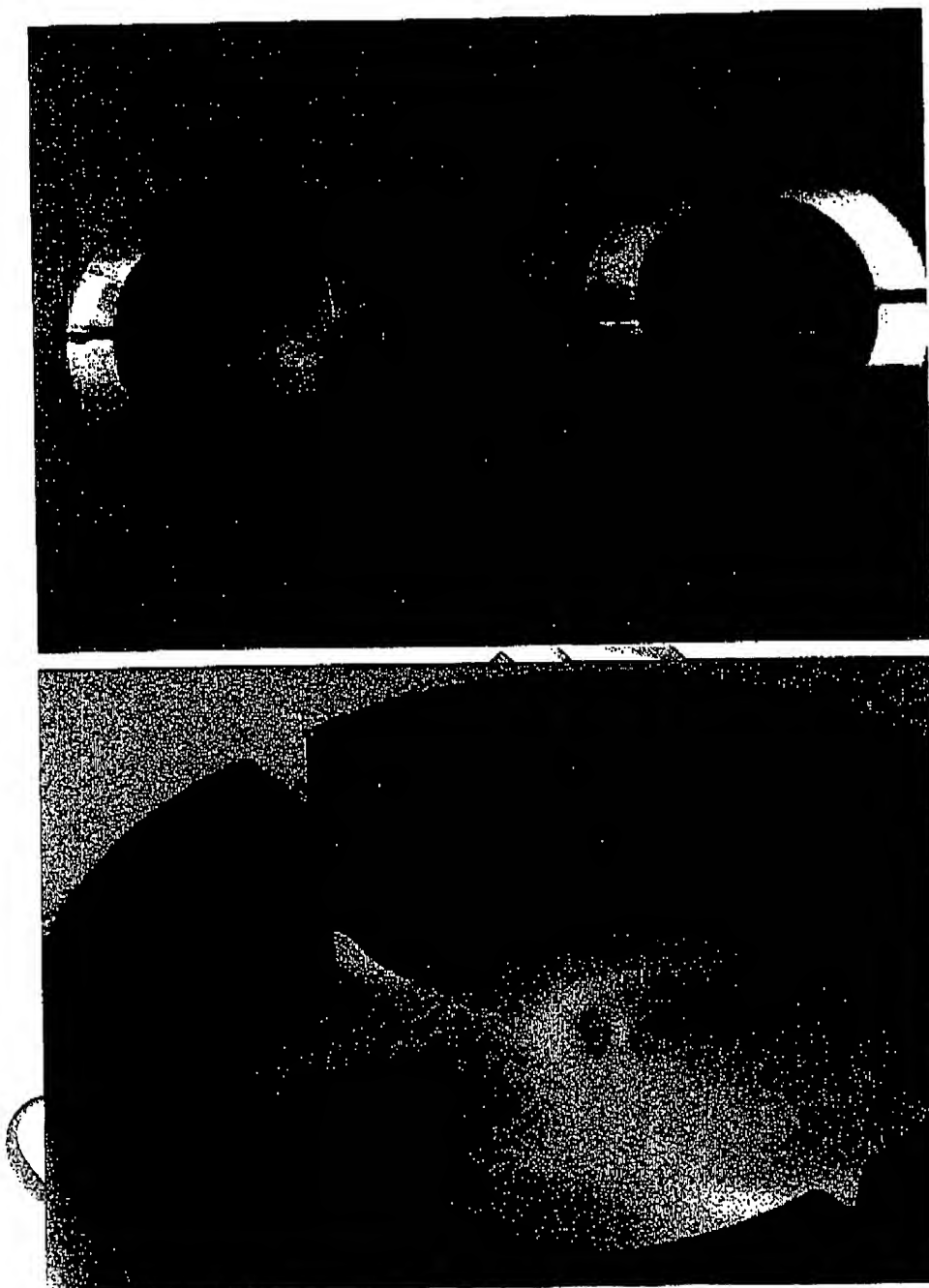
**Sameh Guirgis**

Sameh Guirgis,

Cellular: (519) 981-4019

Attachments

CONFIDENTIAL



**1. Photos of steel ring fractured during the experimental part of the Thesis**

"10. A process for the fracture separation cracking of a production part having a cylindrical bore passing therethrough into a first an upper side portion and a second an under side portion, the cylindrical bore having a central axis, the production part having two opposed sides proximate to the intersection of a predetermined pre-specified fracture plane passing through the cylindrical bore and the production part, the process including the step of applying at least one fatigue force alternating load to at least one of the first upper side portion and the second portion under side portion, said at least one force alternating load being applied to fracture crack the production part into the first upper side portion (1B) and the second under side portion (1A) so as to separate the first upper side portion from the second under side portion substantially along said predetermined pre-specified fracture plane, said at least one fatigue force alternating load being selected from the group comprising:

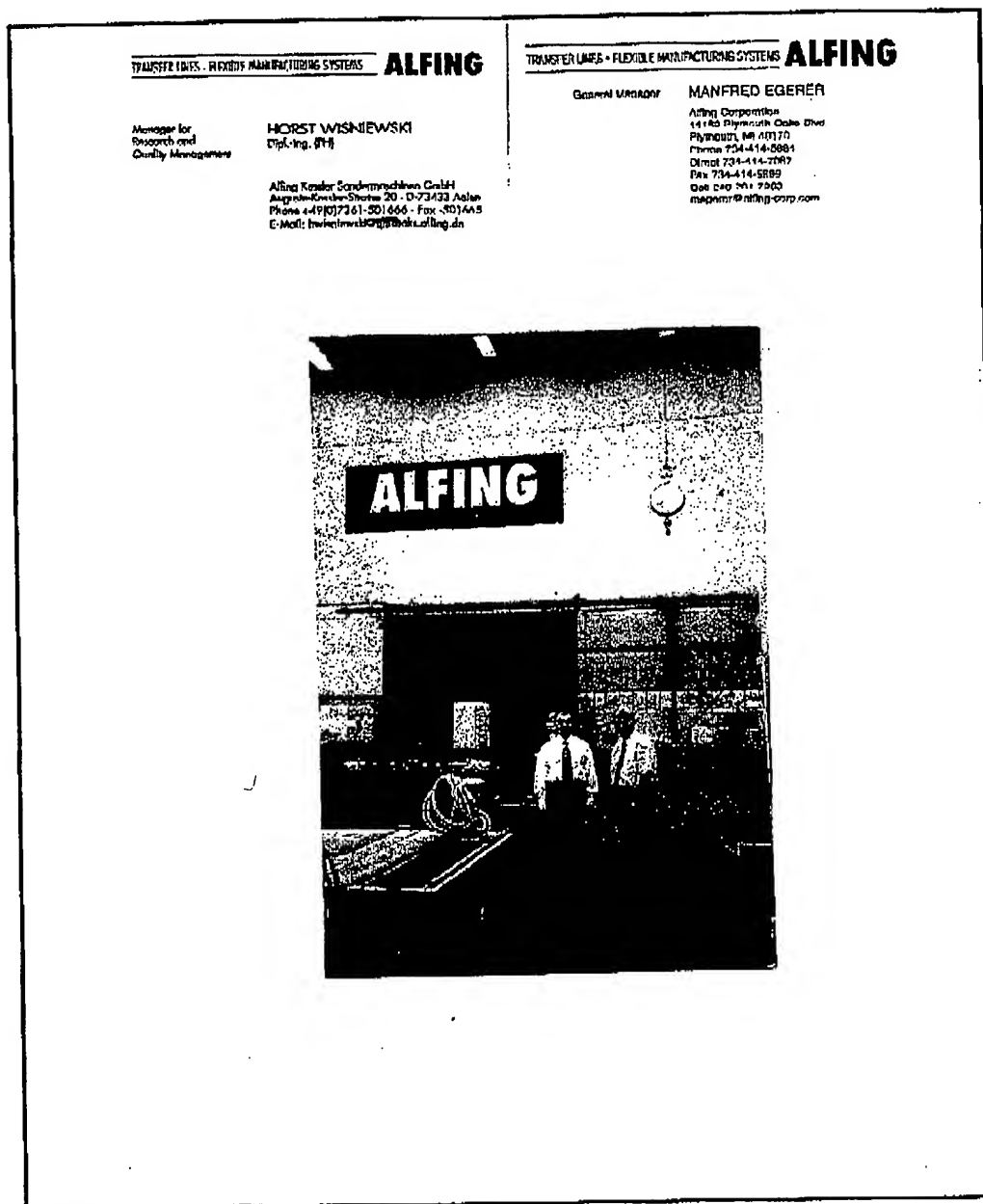
- i) a longitudinal cyclic force alternating load applied to one of the first upper side portion and the second under side portion relative to the other of the first upper side portion and the second under side portion, said longitudinal cyclic force alternating load being applied in a direction substantially perpendicular to said predetermined pre-specified fracture plane (1F), and
- ii) ~~a lateral cyclic force applied to each of the opposed sides of the part, each of said lateral cyclic forces being applied along a substantially straight line that is substantially parallel to the predetermined fracture plane and substantially perpendicular to the central axis, where at any time instant, each of said lateral cyclic forces being substantially equal in magnitude and acting opposite in direction to one another.~~

## 2. Amendments to claim number 10 of European Patent EP 1324849

<sup>1</sup> This phrase was added to describe the method of application of the lateral cyclic force only, since the longitudinal cyclic force is described here, then the phrase was omitted.







4. A Photo that was taken in the facilities of Alfing Kessler Sondermaschinen GmbH in Aalen, Germany in the month of July 2001. The photo shows Mr. Horst Wisniewski and Mr. Sameh Guirgis during the latter visit to Germany in accepting the invitation of Alfing.